We claim:-

1. A copper(I) formate complex of the formula $L_nCu(HCOO) \cdot x\ HCOOH$, where x is from 0 to 10, n is 1, 2, 3 or 4 and the n ligands L, independently of one another, are each one of the following ligands:

   - a phosphane of the formula $R^1R^2R^3P$;
   - a phosphite of the formula $(R^1O)(R^2O)(R^3O)P$;
   - an isocyanide of the formula R^1-NC;
   - an alkene of the formula $R^1R^2C=CR^3R^4$; or
   - an alkyne of the formula $R^1C\equiv CR^2$;

   where R^1, R^2, R^3 and R^4, independently of one another, are hydrogen, a linear or branched, optionally partly or completely fluorinated alkyl, aminoalkyl, alkoxyalkyl, hydroxyalkyl, phosphinoalkyl or aryl radical of one to 20 carbon atoms;

   with the exception of triphenylphosphinocopper(I) formate and 1,1,1-tris(diphenylphosphinomethyl)ethanecopper(I) formate.

2. A copper(I) formate complex according to claim 1, wherein n is 2 or 3.

3. A copper(I) formate complex according to claim 1 or 2, wherein L is selected from the group consisting of trimethylphosphine, triethylphosphine, triisopropylphosphine, tri-n-butylphosphine, triisobutylphosphine, tricyclopentylphosphine, trimethoxyphosphine, triethoxyphosphine, triisopropoxyphosphine, tri(2,2,2-trifluoroethoxy)phosphine, isopropyl isocyanide, n-butyl isocyanide, tert-butyl isocyanide and cyclohexyl isocyanide.

4. A copper(I) formate complex according to claim 3, wherein L is tri-n-butylphosphine.

5. A copper(I) formate complex according to claim 4, wherein x is 1.

6. A process for the preparation of a copper(I) formate complex defined in any of claims 1 to 5 by reacting copper(I) formate with ligand L and optionally formic acid.

7. A process according to claim 6, wherein the copper(I) formate is obtained in a first step from copper(II) formate, metallic copper and formic acid and is not isolated before addition of the ligand L.

8. A process for the preparation of a copper(I) formate complex defined in any of claims 1 to 5 by reacting a copper(I) halide complex of the formula $L_nCu(I)X$, where X is a halide and L and n have the meanings defined in claim 1, with formic acid and then with a base.

9. A process for depositing metallic copper on a substrate by application of a copper(I) formate complex defined in any of claims 1 to 5 to the substrate and thermal decomposition of the copper(I) formate complex at a temperature of at least 80°C.

10. A process according to claim 9, wherein the copper(I) formate complex is deposited from the gas phase and simultaneously decomposed.

11. A process according to claim 9, wherein the substrate is sprayed with a solution of the copper(I) formate complex and the latter is simultaneously or subsequently decomposed.

12. A process according to claim 9, wherein a solution of the copper(I) formate complex is applied to a rotating substrate and the copper(I) formate complex is simultaneously or subsequently decomposed.